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| EXAMINER | |
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| SHORTENED STATUTORY PERIOD OF RESPONSE | MAIL DATE | DELIVERY MODE |
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

| Office Action Summary | Application No. 10/542,017 | Applicant(s) TAKEDA ET AL. |
|---|---|---|
| | Examiner Sow-Fun Hon | Art Unit 1772 |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on 06 November 2006.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) 1-4 and 6-25 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-4 and 6-25 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

## DETAILED ACTION

### *Withdrawn Rejections and Objections*

1. The obviousness-type double patenting rejection of claims 1, 4, 6-12 over claims 1, 3, 7-11, 13-14 of copending Application No.10/542,065, is withdrawn due to Applicant's amendment of the copending application '065, dated 10/30/06, and Applicant's amendment of the present application, dated 11/06/06.

2. The objections to claims 1-24 and the 35 U.S.C. 102(b) and 103(a) rejections of claims 1-25 are withdrawn due to Applicant's amendment dated 11/06/06.

### *New Rejections*

### *Claim Rejections - 35 USC § 102*

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

3. Claims 1-4, 7-8, 11-12, 24 are rejected under 35 U.S.C. 102(b) as being anticipated by Verrall (US 6,099,758).

Regarding claims 1, 3, Verrall teaches a broadband cholesteric liquid crystal film (column 2, lines 1-5, film, column 1, lines 59-62) comprising: a liquid crystal film obtained by polymerizing a liquid crystal mixture containing a polymerizable mesogen compound (a) (abstract), a polymerizable chiral agent (b) (abstract) and a photoisomerizable material (c) which is at least one photoisomerizable material selected from the group consisting of stilbene (column 12, lines 25-31) when MG is selected of

formula II of Verrall, shown below, wherein Z is –CH=CH- (column 12, lines 60-67), $A^1$ and $A^2$ are 1,4-phenylene (column 13, line 3) and m = 1.

$$—(A^1—Z)_m—A^2— \qquad \text{II}$$

Verrall teaches that the liquid crystal mixture is coated on a substrate (abstract), wherein the liquid crystal mixture further comprises a photopolymerization initiator (d) and is polymerized (polymerization initiator, polymerized by exposure to actinic radiation, abstract, photoinitiator, column 27, lines 49-54) with ultraviolet light (column 27, lines 49-54). Verrall teaches that the broad band liquid crystal film has a reflection bandwidth of 200 nm or more (at least, column 4, lines 21-23).

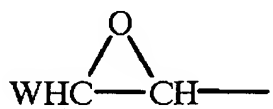
Regarding claim 2, Verrall teaches that a pitch length in the cholesteric liquid crystal film changes continuously (increases from a smaller value at one edge of the film to a higher value at the opposite edge of the film, column 4, lines 27-32).

Regarding claim 4, Verrall teaches that the polymerizable mesogen compound (a) has one polymerizable functional group (ethylene or vinyl, epoxy, column 12, lines 32-45), examples of which are shown on the next page.

P-(Sp-X)$_n$-MG-R  I

wherein

P is $CH_2{=}CW{-}COO{-}$, $WCH{=}CH{-}O$,



or $CH_2{=}CH$-Phenyl-$(O)_k$- with W being H, $CH_3$ or Cl and k being 0 or 1,

Verrall teaches that the polymerizable chiral agent (b) has two or more polymerizable functional groups (column 11, lines 54-55).

Regarding claim 6, Verrall teaches a manufacturing method for the broad band cholesteric liquid crystal film (column 2, lines 1-5, film, column 1, lines 59-62) comprising steps of: polymerizing a liquid crystal mixture containing a polymerizable mesogen compound (a) (abstract), a polymerizable chiral agent (b) (abstract) and a photoisomerizable material (c) which is at least one kind selected from the group consisting of stilbene (column 12, lines 25-31) when MG is selected of formula II of Verrall, shown below, wherein Z is –CH=CH- (column 12, lines 60-67), $A^1$ and $A^2$ are 1,4-phenylene (column 13, line 3) and m = 1.

$$—(A^1—Z)_m—A^2—  \qquad \text{II}$$

Verrall teaches the step of coating the liquid crystal mixture on a substrate (abstract), and the step of polymerizing the liquid crystal mixture with ultraviolet light (column 27, lines 49-54).

Regarding claims 7-8, 11-12, 24, Verrall teaches a circularly polarizing plate comprising the broad band cholesteric liquid crystal film (the light incident on the reflective polarizer is transformed into circularly polarized light, column 9, lines 65-67). Verrall teaches a linear polarizer (create linearly polarized light, column 8, line 54) comprising the circularly polarizing plate and a λ/4 plate (converts circular polarized light to linear polarized light, column 8, lines 60-63) laminated on the circularly polarizing plate (laminating QWF and the reflective polarizer together, column 9, line 5). Verrall teaches a luminaire (illumination, column 10, lines 8-15) comprising the circularly polarizing plate (inventive reflective polarizer 14, column 10, lines 51-52), which is part of the linear polarizer (reflected light redirected onto the reflective polarizer 14, converted by QWF 15 and compensation film 16 into linear polarized light, column 10, lines 63-66) on a front surface side of a surface light source having a reflective layer on the back surface side thereof (backlight unit 11 with a lamp 12 and a combined light guide and reflector 13, column 10, lines 50-52); and a liquid crystal display (device 10, column 10, lines 49-50) comprising a liquid crystal cell (18, column 10, lines 55-56) on a light emitting side of the luminaire (viewer 20, column 11, line 3); in Fig. 1 shown on the next page.

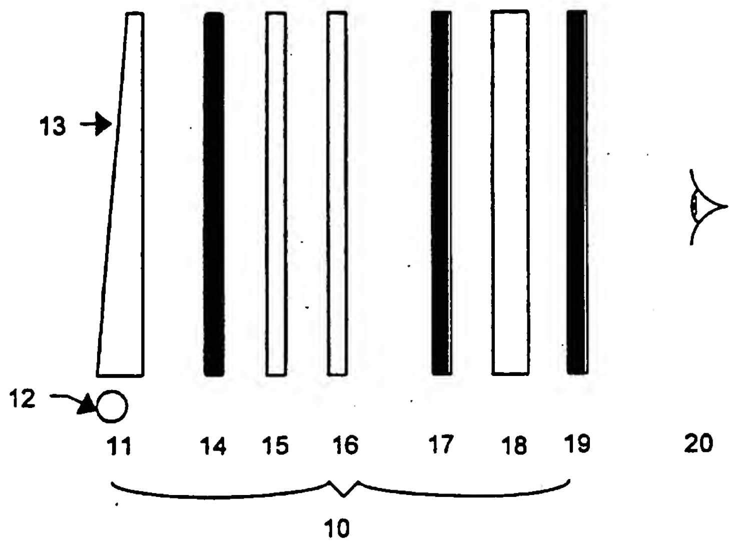



FIG. 1

Regarding claim 9, Verrall teaches that the liquid crystal mixture that is used to form the broad band cholesteric liquid crystal film of the circularly polarizing plate (the light incident on the reflective polarizer is transformed into circularly polarized light, column 9, lines 65-67), is coated and cured directly on the λ/4 plate which serves as a substrate (column 9, lines 7-10), and that the substrate can function as a polymerization inhibitor, wherein the short pitch is on the side of the film towards the λ/4 plate substrate with the smaller inhibiting effect if the other side of the film encounters a greater polymerization inhibitor (column 5, lines 45-53). Hence, Verrall teaches that the circularly polarizing plate comprising the broad band cholesteric liquid crystal film, is laminated on the λ/4 plate so that a pitch length in the film is narrowed toward the λ/4 plate. Furthermore, Verrall teaches that the pitch length in the cholesteric liquid crystal film changes continuously (increases from a smaller value at one edge of the film to a

higher value at the opposite edge of the film, column 4, lines 27-32). Thus, Verrall teaches that the circularly polarizing plate comprising the broad band cholesteric liquid crystal film, is laminated on the λ/4 plate so that a pitch length in the film is narrowed toward the λ/4 plate continuously.

***Claim Rejections - 35 USC § 103***

4. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Verrall, as applied to claims 1-4, 6-9, 11-12, 24 above, and further in view of Cobb (US 6,515,785).

Verrall teaches the linear polarizer comprising the circularly polarizing plate comprising the broad band cholesteric liquid crystal film, and a λ/4 plate laminated on the reflecting circularly polarizing plate, as described above. Verrall fails to teach that the linear polarizer further comprises an absorption polarizer adhered to the linear polarizer let alone that a transmission axis direction of the absorption polarizer and a transmission axis of the linear polarizer are arranged in parallel with each other.

However, Cobb teaches an absorbing polarizer and a reflecting polarizer laminated together and aligned for highest transmission (column 12, lines 38-46), which is when the transmission axis of the absorption polarizer (802, column 17, lines 44-46) and the reflecting polarizer (801, column 17, lines 52-53) are arranged in parallel with each other (801 is rotated to an orientation in which its transmission axis is parallel to the transmission axis of 802, column 59-62), for the purpose of providing enhanced contrast with the highest transmission (column 12, lines 30-45).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made, to have adhered an absorption polarizer to the reflecting linear polarizer of Verrall, wherein a transmission axis direction of the absorption polarizer and a transmission axis of the linear polarizer are arranged in parallel with each other, in order to provide enhanced contrast with the highest transmission, as taught by Cobb.

5. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Verrall, as applied to claims 1-4, 6-9, 11-12, 24 above, and further in view of Ouderkirk (US 6,573,963).

Verrall teaches a polarizing element system comprising the circularly polarizing plate comprising the broad band cholesteric liquid crystal film as described above. In addition, Verrall teaches that the circularly polarizing plate comprising the broad band cholesteric liquid crystal film is a reflection polarizer (a) (the light incident on the reflective polarizer is transformed into circularly polarized light, column 9, lines 65-67), combined with a retardation layer (b) which has a retardation of λ/4, within the claimed range of λ/8 or more (one of a combination of two or more optical retardation layers with a net retardation of 0.25 times the wavelength of the light reflected by the polarizer over a substantial portion of the reflected bandwidth of the polarizer, and used as a QWF, column 9, lines 23-32), for the purpose of compensating for the viewing angle dependence of the phase retardation of light transmitted by the reflective polarizer (column 9, lines 33-37). Verrall teaches that the optical retardation of λ/4, which is within the claimed range of λ/8 or more, is relative to incident light incoming at an angle

of 30 degrees or more from the normal direction (angle between the optical axis of the linear polarizer and the major optical axis of the QWF is ranging from 30 to 60 degrees, column 10, lines 17-20). Verrall fails to disclose that the retardation layer (b) has a front face retardation of almost zero.

However, Verrall teaches that the incident light incoming in the normal direction (light at normal incidence, column 10, lines 1-3) is transformed into circularly polarized light by the reflection polarizer (a), which is the circularly polarizing plate (column 9, lines 65-67). A front face retardation in the normal direction for the retardation layer (b) is desirably zero or almost zero for the purpose of transforming as much incident light as possible into circularly polarized light.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made, to have used a retardation layer (b) with a front face retardation (in the normal direction) of almost zero combined with the retardation within the range of $\lambda/8$ or more relative to incident light incoming at an angle of 30 degrees or more inclined from the normal direction of the retardation layer (b) of Verrall, in order to transform as much of the incident light as possible into the desired circularly polarized light, as taught by Verrall.

Verrall fails to teach that the reflection polarizer (a) comprises at least two layers having respective selective reflection wavelength bands of polarized light superimposed on each other.

However, Ouderkirk teaches a reflection polarizer which comprises at least two layers (two layers having different pitches, column 7, lines 35-39) for the purpose of

providing more reflectivity over the entire bandwidth (column 7, lines 40-44), wherein an improvement is to have the respective selective reflection wavelength bands of polarized light superimposed on each other (pitch of the layers varying over a range between the individual pitches of the two layers, column 8, lines 15-17). Hence Ouderkirk demonstrates that it would have been obvious to one of ordinary skill in the art to have provided at least two layers of a reflection polarizer (a) having respective selective reflection wavelength bands of polarized light superimposed on each other, for the purpose of providing reflectivity over the entire bandwidth.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made, to have provided the reflection polarizer (a) of Verrall, with at least two layers of broad band cholesteric liquid crystal film having respective selective reflection wavelength bands of polarized light superimposed on each other, in order to obtain more reflectivity over the entire bandwidth, as taught by Ouderkirk; and to have arranged the retardation layer (b) between the at least two layers of reflection polarizer (a) of Verrall in view of Ouderkirk, in order to compensate for the viewing angle dependence of the phase retardation of light transmitted by at least the first layer of reflective polarizer (a), as taught by Verrall.

6. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Verrall in view of Ouderkirk as applied to claim 13 above, and as evidenced by Kameyama (US 6,088,079).

Verrall in view of Ouderkirk, has been discussed above, and fails to disclose that a selective reflection wavelengths of the at least two layers of the reflection polarizer (a) are superimposed on each other in the wavelength range 550 nm ± 10 nm.

However, Ouderkirk teaches that the first embodiment of the two layers of the reflection polarizer includes two separate reflection bands from about 400 to 500 nm, and from about 600 to 700 nm (column 7, lines 40-46), and that the improvement is where respective selective reflection wavelength bands of polarized light are superimposed on each other (pitch of the layers varying over a range between the individual pitches of the two layers, column 8, lines 15-17). Thus the improvement ideally provides reflection wavelength bands of polarized light superimposed on each other at is the exact middle of the visible spectrum of 400 to 700 nm, which is 550 nm, as evidenced by Kameyama.

Kameyama teaches a broad band cholesteric liquid crystal film which is circularly polarizing over a wavelength having a width of at least 50 nm and including a wavelength of 550 nm, wherein the linearly polarized light obtained through a quarter wavelength plate has a maximum degree of polarization at a wavelength not shorter than 550 nm (abstract).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made, to have provided selective reflection wavelengths of the at least two layers of the reflection polarizer (a) of Verrall in view of Ouderkirk, which are superimposed on each other in the wavelength range 550 nm ± 10 nm, as taught by Ouderkirk and as evidenced by Kameyama.

7. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Verrall in view of Ouderkirk as applied to claim 13 above, and further in view of Kashima (US 6,961,106).

Verrall in view of Ouderkirk teaches the retardation layer (b) as discussed above, but fails to teach that it is a layer comprising a cholesteric liquid crystal phase having a selective reflection wavelength band other than the visible light region fixed in planar alignment.

However, Kashima teaches a retardation layer comprising a cholesteric liquid crystal phase having a selective reflection wavelength band in the ultraviolet region, which is other than the visible light region, fixed in planar alignment (abstract) for the purpose of providing the desired optical reflectance and compensation (C plate, column 3, lines 15-20).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made, to have use a layer comprising a cholesteric liquid crystal phase having a selective reflection wavelength band other than the visible light region fixed in planar alignment, as the retardation layer (b) of Verrall in view of Ouderkirk, in order to provide the desired optical reflectance and compensation, as taught by Kashima.

8. Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Verrall in view of Ouderkirk as applied to claim 13 above, and further in view of Taber (US 5,731,886).

Verrall in view of Ouderkirk teaches the retardation layer (b) as discussed above, but fails to teach that it is a layer comprising a rod-like liquid crystal fixed in nematic alignment state.

However, Taber teaches a retardation layer comprising a rod-like liquid crystal fixed in homeotropic alignment state (oriented nematic LC molecules, column 4, lines 65-67) for the purpose of providing the desired optical compensation (column 4, lines 56-60).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made, to have used a retardation layer comprising a rod-like liquid crystal fixed in homeotropic alignment state, as the retardation layer (b) of Verrall in view of Ouderkirk, in order to provide the desired optical compensation, as taught by Taber.

9. Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Verrall in view of Ouderkirk as applied to claim 13 above, and further in view of Kawata (US 5,518,783).

Verrall in view of Ouderkirk teaches the retardation layer (b) as discussed above, but fails to teach that it is a layer comprising a discotic liquid crystal fixed in nematic phase alignment.

However, Kawata teaches a retardation layer comprising a discotic liquid crystal fixed in nematic phase alignment (column 3, lines 10-17) for the purpose of providing the desired optical compensation and wide viewing angle (column 3, lines 10-21).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made, to have used a retardation layer comprising a discotic liquid crystal fixed in nematic phase alignment, as the retardation layer (b) of Verrall in view of Ouderkirk, in order to provide the desired optical compensation and wide viewing angle, as taught by Kawata.

10. Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Verrall in view of Ouderkirk as applied to claim 13 above, and further in view of Duncan (US 6,175,400).

Verrall in view of Ouderkirk teaches the retardation layer (b) as discussed above, but fails to teach that it is a layer comprising a biaxially oriented polymer film.

However, Duncan teaches a retardation layer comprising a biaxially oriented polymer film (polystyrene, column 11, lines 10-15) for the purpose of providing the desired optical compensation (column 11, lines 10-15).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made, to have used a retardation layer comprising a biaxially oriented polymer film, as the retardation layer (b) of Verrall in view of Ouderkirk, in order to provide the desired optical compensation, as taught by Duncan.

11. Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Verrall in view of Ouderkirk as applied to claim 13 above, and further in view of Sakatani (Abstract, JP 06-082777).

Verrall in view of Ouderkirk teaches the retardation layer (b) as discussed above, but fails to teach that it is a layer comprising an inorganic layered compound with

negative uniaxiality fixed in alignment state where an optical axis thereof is a normal direction of a surface thereof.

However, Sakatani teaches a retardation layer comprising an inorganic layered compound with negative uniaxiality fixed in alignment state where an optical axis thereof is a normal direction of a surface thereof (abstract) as defined by Applicant's specification (page 39, lines 1-5).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made, to have used a retardation layer comprising an inorganic layered compound with negative uniaxiality fixed in alignment state where an optical axis thereof is a normal direction of a surface thereof, as the retardation layer (b) of Verrall in view of Ouderkirk, in order to provide the desired optical compensation, as taught by Sakatani.

12. Claims 20-23, 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Verrall in view of Ouderkirk as applied to claim 13 above, and further in view of Kameyama (US 6,088,079).

Verrall in view of Ouderkirk teaches a polarizing element system comprising: a retardation (in the normal direction) of almost zero and a retardation of $\lambda/8$ or more relative to incident light incoming at an angle of 30 degrees or more inclined from the normal direction is arranged between at least two layers of a reflection polarizer (a) having respective selective reflection wavelength bands of polarized light superimposed on each other, wherein the reflection polarizer (a) is a circularly polarizing plate comprising the broad band cholesteric liquid crystal film described above. In addition,

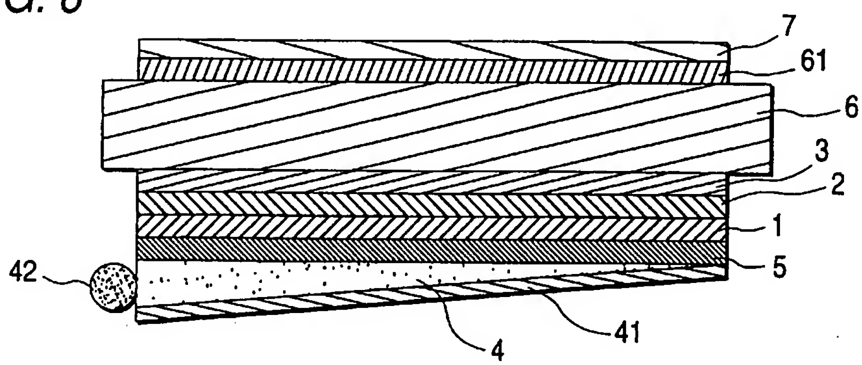
Verrall teaches a wide viewing angle liquid crystal display (device 10, column 10, lines 49-50, improved optical properties at large viewing angles, column 2, lines 12-20) comprising a backlight system containing a light source, a polarizing element system and a liquid crystal cell transmitting collimated light (backlight unit 11, lamp 12, inventive reflective polarizer 14, liquid crystal cell 18, column 10, lines 50-56).

Regarding claims 20, 22, 25, Verrall also teaches that the liquid crystal display can additionally comprise diffusers (column 10, lines 21-25). Verrall in view of Ouderkirk, fails to teach the arrangement for the backlight system, wherein the polarizing element system collimates light from a diffuse light source, polarizing plates arranged on both sides of the liquid cell; and a viewing magnification film, which diffuses transmitted light, arranged on a viewer side of the liquid cell, let alone that the viewing angle magnification film is a diffuse plate substantially having neither backscattering nor polarization cancellation.

However, Kameyama teaches a wide viewing angle liquid crystal display (excellent viewing angle characteristics, column 1, lines 45-50) in Fig. 8 shown on the next page, comprising at least: a backlight system containing a polarizing element system to collimate a light from a diffuse light source (light diffusing plate 5 disposed on the back light side, column 16, lines 50-59, lighting device comprising a light conductive plate 4, column 16, lines 1-5, light source 42, column 3, lines 20-23); a liquid crystal cell 6 transmitting collimated light; a polarizing plate arranged on both sides of the liquid crystal cell (polarizing plate 3, 61, liquid crystal cell 6, column 3, lines 15-25), and a viewing angle magnification film, which is a diffuse plate which diffuses transmitted light,

arranged on a view side of the liquid crystal cell (light diffusing plate 7 for diffusing light to be viewed, column 16, lines 10-12). Kameyama fails to disclose that the diffuse plate substantially has neither backscattering nor polarization cancellation.

FIG. 8




However, Kameyama teaches that the diffuse plate is for diffusing light to be viewed (column 16, lines 10-12), and that excellent brightness and viewing is desired (perceptibility, abstract), implying that the diffuse plate ideally has neither backscattering nor polarization cancellation, for the purpose of providing the desired brightness and viewing.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made, to have used a diffuse plate with substantially neither backscattering nor polarization cancellation as the diffuse plate of Kameyama, in order to provide the desired brightness and viewing, as taught by Kameyama.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made, to have provided an arrangement for a backlight system containing the polarizing system of Verrall in view of Ouderkirk, to collimate light from a

diffuse light source; the liquid crystal cell transmitting collimated light; a polarizing plate arranged on both sides of the liquid crystal cell; and a diffuse plate which has substantially neither backscattering nor polarization cancellation, as a viewing magnification film diffusing transmitted light, arranged on a viewer side of the liquid crystal cell; as the arrangement for the backlight system of the wide viewing angle liquid crystal display of Verrall in view of Ouderkirk, in order to provide the desired brightness and viewing, as taught by Kameyama.

Regarding claim 21, Verall also teaches that the λ/4 plate (QWF 15, column 10, line 52) is arranged on the viewer side (liquid crystal cell side, 18, column 10, lines 55-56) of the polarizing element system (inventive reflective polarizer 14, column 10, line 52). Verrall in view of Ouderkirk, fails to teach that the λ/4 plate is arranged so that an axial direction of linearly polarized light transmitted and a transmission axis direction of a polarizing plate on the lower side (the light source side) of the liquid crystal display are arranged in parallel with each other.

However, Kameyama teaches that the transmission axis of the polarizing plate is arranged in parallel with the axial direction of linearly polarized light transmitted by the λ/4 plate, for the purpose of providing the most efficient light utilization (column 12, lines 10-16).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made, to have arranged the λ/4 plate on the viewer side (the liquid crystal cell side) of the polarizing element system in the liquid crystal display of Verrall in view of Ouderkirk, so that an axial direction of linearly polarized light

transmitted and a transmission axis direction of a polarizing plate on the lower side (the light source side) of the liquid crystal display are arranged in parallel with each other, in order to provide the most efficient light utilization, as taught by Kameyama.

Regarding claim 23, Verrall teaches that the liquid crystal display can additionally comprise adhesive layers (column 10, lines 20-25). Verrall in view of Ouderkirk, fails to teach that each layer is laminated with a pressure sensitive adhesive.

However, Kameyama teaches a pressure sensitive adhesive with stress-relaxing properties for laminating each layer (column 14, lines 25-35) for the purpose of providing brightness and excellent display quality (column 14, lines 39-41).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made, to have used a pressure sensitive adhesive as the adhesive laminating each layer in the liquid crystal display of Verrall in view of Ouderkirk, in order to provide improved brightness and display quality, as taught by Kameyama.

### ***Response to Arguments***

13. Applicant's arguments against the valid use of Verrall have been fully considered but they are not persuasive.

14. Applicant argues that the photoisomerizable material (c) is not a polymerizable material, and that therefore, the stilbene and azobenzene type compounds do not have a polymerizable functional group.

Applicant is respectfully apprised that Applicant's specification discloses that any of the compounds causing a photoisomerization reaction can be employed without any specific limitation thereon (page 21, lines 3-5). Thus Applicant fails to limit the photoisomerizable material (c) to one that is not a polymerizable material and does not have a polymerizable functional group. Furthermore, the features upon which applicant relies (i.e., does not have a polymerizable functional group) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

15. Applicant argues that it is clear that the photoisomerizable material (c) of Applicant is a material mixed separately from the polymerizing mesogen compound (a) according to the present invention.

Applicant is respectfully apprised that the recitation of "a liquid crystal mixture containing a polymerizable mesogen compound (a), a polymerizable chiral agent (b) and a photoisomerizable material (c)" actually teaches that the photoisomerizable material (c) of Applicant is a material mixed together with, not separately from, the polymerizing mesogen compound (a).

16. Applicant's arguments against the secondary references of Ouderkirk, Cobb, Kameyama, Kashima, Taber, Kawata, Duncan and Sakatani, are directed against the valid use of Verrall as the primary reference, and are addressed above.

## *Conclusion*

17. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL.** See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication should be directed to Sow-Fun Hon whose telephone number is (571)272-1492. The examiner can normally be reached Monday to Friday from 10:00 AM to 6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Harold Pyon, can be reached at (571)272-1498. The fax phone number for the organization where this application or proceeding is assigned is (571)273-8300.

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S. Hon
Sow-Fun Hon
02/02/07

Nasser Ahmad
NASSER AHMAD
PRIMARY EXAMINER
2/5/07